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APR 13 1971

Grading Permit No. 5155

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**FOR REFERENCE**

not to be taken from this room

**PRELIMINARY SOILS INVESTIGATION**

**PHASE II - KAOPA SUBDIVISION UNIT 3**

**KAILUA, OAHU, HAWAII**

**for**

**HAWAIIAN PACIFIC INDUSTRIES**

*T.M.K. 4-2-04*

**MUNICIPAL REFERENCE & RECORDS CENTER**  
City & County of Honolulu  
City Hall Annex, 558 S. King Street  
Honolulu, Hawaii 96813

**W.O. 118-B**

**October 27, 1971**

**EH**

**ERNEST K. HIRATA & ASSOCIATES, INC.**



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Soils and Foundation Engineering

1157 South King Street • Honolulu, Hawaii 96814 • Phone 533-6529

October 27, 1971  
W.O. 118-B

Hawaiian Pacific Industries  
1020-E Keolu Drive  
Kailua, Oahu, Hawaii 96734

Attention: Mr. William Rus

Subject: Preliminary Soils Investigation  
Phase II - Kaopa Subdivision Unit 3  
Kailua, Oahu, Hawaii

Gentlemen:

The following report presents the results of a soils investigation conducted on the subject property. A preliminary site plan showing the area covered by this investigation is enclosed in the Appendix. This investigation was authorized to determine the subsurface soil conditions at the site.

SITE DESCRIPTION

The subject area is located along the western portion of Enchanted Lakes adjacent to the proposed extension of Keolu Drive. The area designated as Phase II is bounded on the north by the planned unit development known as Unit 8-B-2. The western boundary includes the proposed extension of Keolu Drive while the southern boundary is limited by the Kaopa #1 Subdivision. The eastern boundary borders Enchanted Lakes and will extend into the lake for a distance of approximately 120 feet.

At present the major portion of Phase II is below sea level except along the southern portions where the land is comprised of mud flats extending into the lake.

#### PROPOSED GRADING

Grading plans for the site have not been completed, however, present plans anticipate removal of all soft material to firm coral or bedrock material. The excavated material is to be replaced with a rock fill upon which compacted certified fill is to be placed until final grades for residential homes have been developed.

Preliminary plans indicate that along the proposed extension of Keolu Drive, rock fill will be placed extending into the lake for a distance of 120 feet. Three extensions of 350 feet each will be placed to create additional marina homes as can be seen on the enclosed plan.

#### FIELD EXPLORATION

Field exploration was performed on October 12, 1971 with the use of a dredging crane for ten test pits. Six test pits were excavated along the lake front while four additional pits were excavated in the Phase I area to confirm depth to firm material.

The approximate location of the test pits are shown on the site plan enclosed in the Appendix.

The soils were logged by our field engineer and classified by visual examination in accordance with the Unified Soil Classification System. The Log of Exploratory Test Pits can be found on Plates A1 and A2 in the Appendix.

#### CONCLUSIONS AND RECOMMENDATIONS

Field exploration indicates that the area extending into the lake consists of soft compressible organic clays underlain by finger coral or weathered bedrock. The average thickness of the clay was approximately 2 feet between test pits 8 through 11 underlain by finger coral. Test Pit 7 encountered soft clays to a depth of 8 feet indicating a previous existing channel or former drainage way.

Test Pit 12 encountered a 3 foot thick clay layer underlain by weathered bedrock material. The weathered material was soft to medium stiff with depth and approximately 5 to 7 feet of removal is anticipated in order to encounter firm material.

The site is feasible for the proposed development provided all soft clays and soft weathered material are excavated and removed down to firm finger coral or firm weathered material. Once the

soft material is removed, rock fill can be placed on the finger coral or weathered bedrock.

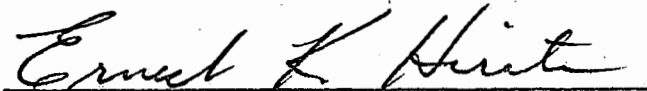
The excavated soft clays may be placed in the school site near Kaopa #2 in the playground areas provided the material is dried, mixed with approved soil, and properly compacted.

Foundation recommendations for Phase II will be determined by the soil properties of the imported fill. Evaluation of the bearing capacity and swell potential will be determined upon completion of mucking and grading operations.

We appreciate this opportunity to be of service. Should you have any questions, please call on us.

Respectfully submitted,

Ernest K. Hirata & Associates, Inc.



Ernest K. Hirata

P.E. 2732



# LOG OF EXPLORATORY TEST PITS

TP 7	Elev. Sea level	0 to 8 feet	Silty CLAY (OH - Pt) - Black and gray, very soft.
		8 to 9 feet	White finger coral.
TP 8	Elev. Sea level	0 to 2 feet	Silty CLAY (OH - Pt) - Black, very soft.
		2 to 3 feet	White finger coral.
TP 9	Elev. Sea level	0 to 2 feet	Silty CLAY (OH - Pt) - Black, very soft.
		2 to 4 feet	White finger coral.
TP 10	Elev. Sea level	0 to 2 feet	Silty CLAY (OH - Pt) - Brown, very soft.
		2 to 3 feet	White finger coral.
TP 11	Elev. Sea level	0 to 3 feet	Silty CLAY (OH - Pt) - Black, very soft.
		3 to 4 feet	White finger coral.
TP 12	Elev. Sea level	0 to 3 feet	Silty CLAY (OH - Pt) - Gray, soft.
		3 to 5 feet	Weathered Rock - soft to medium stiff with depth.
TP 13	Elev. Sea level	0 to 4 feet	Silty CLAY (OH - Pt) - Gray, soft.
		4 to 5 feet	White finger coral.
TP 14	Elev. Sea level	0 to 3 feet	Silty CLAY (OH - Pt) - Black, soft.
		3 to 4 feet	White finger coral.

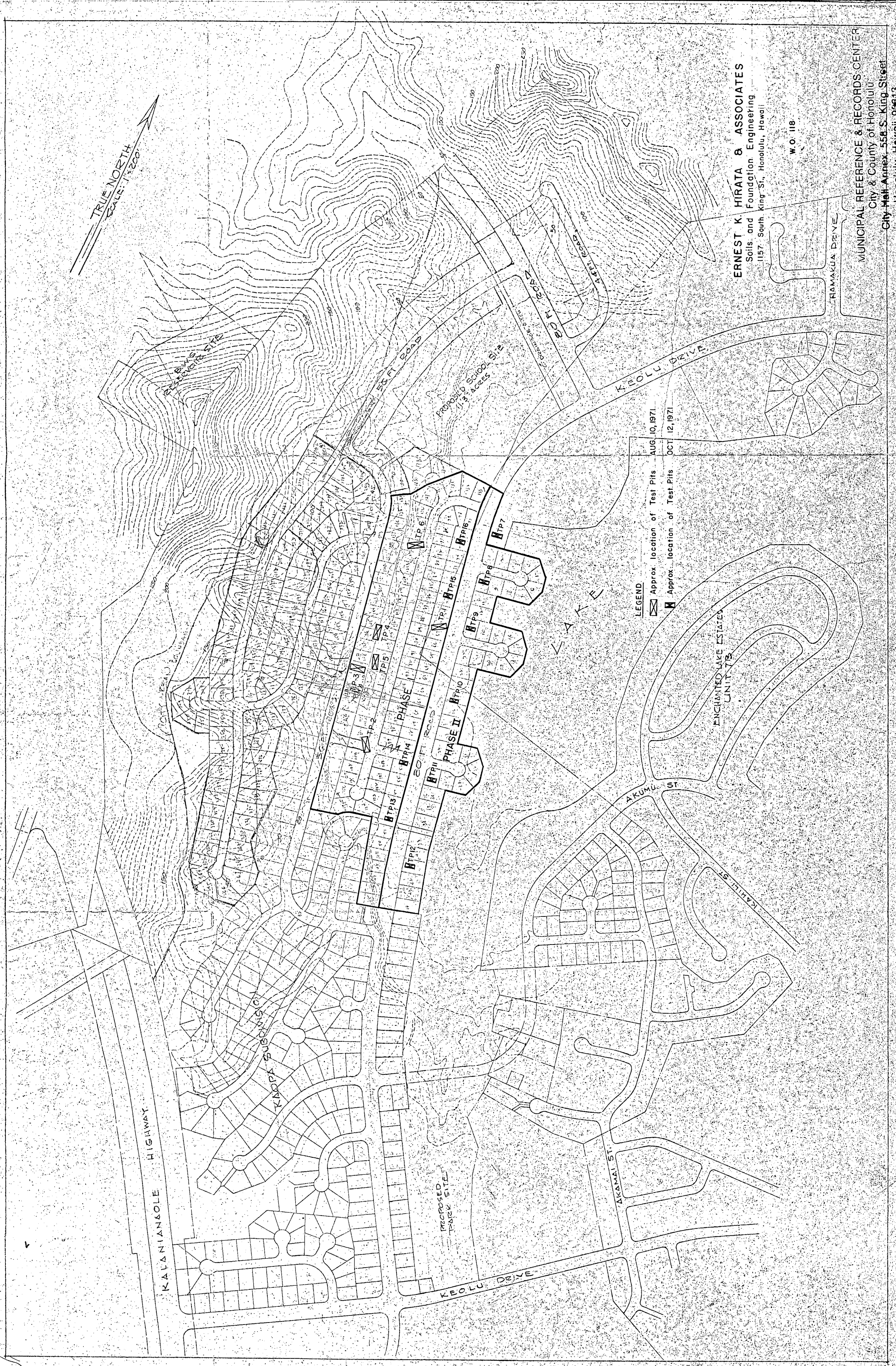
TP 15 Elev. Sea level 0 to 4 feet Silty CLAY (OH - Pt) -  
Black, soft.

4 to 4.5 feet White finger coral.

TP 16 Elev. 2 0 to 4 feet Silty CLAY (OH - Pt)-  
Brown, soft.

4 to 5 feet White finger coral.





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